Office of Naval Research Global 2016 Recruiting Brief

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Technical Director

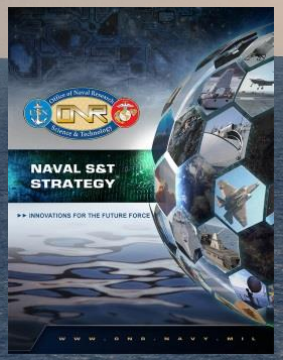
September 2015

http://www.onr.navy.mil/en/Science-Technology/ONR-Global/employment-global.aspx

The Office of Naval Research

The S&T Provider for the Navy *and* Marine Corps

- 4,000+ People
- 23 Locations
- $2.1B / year
- >1,000 Partners



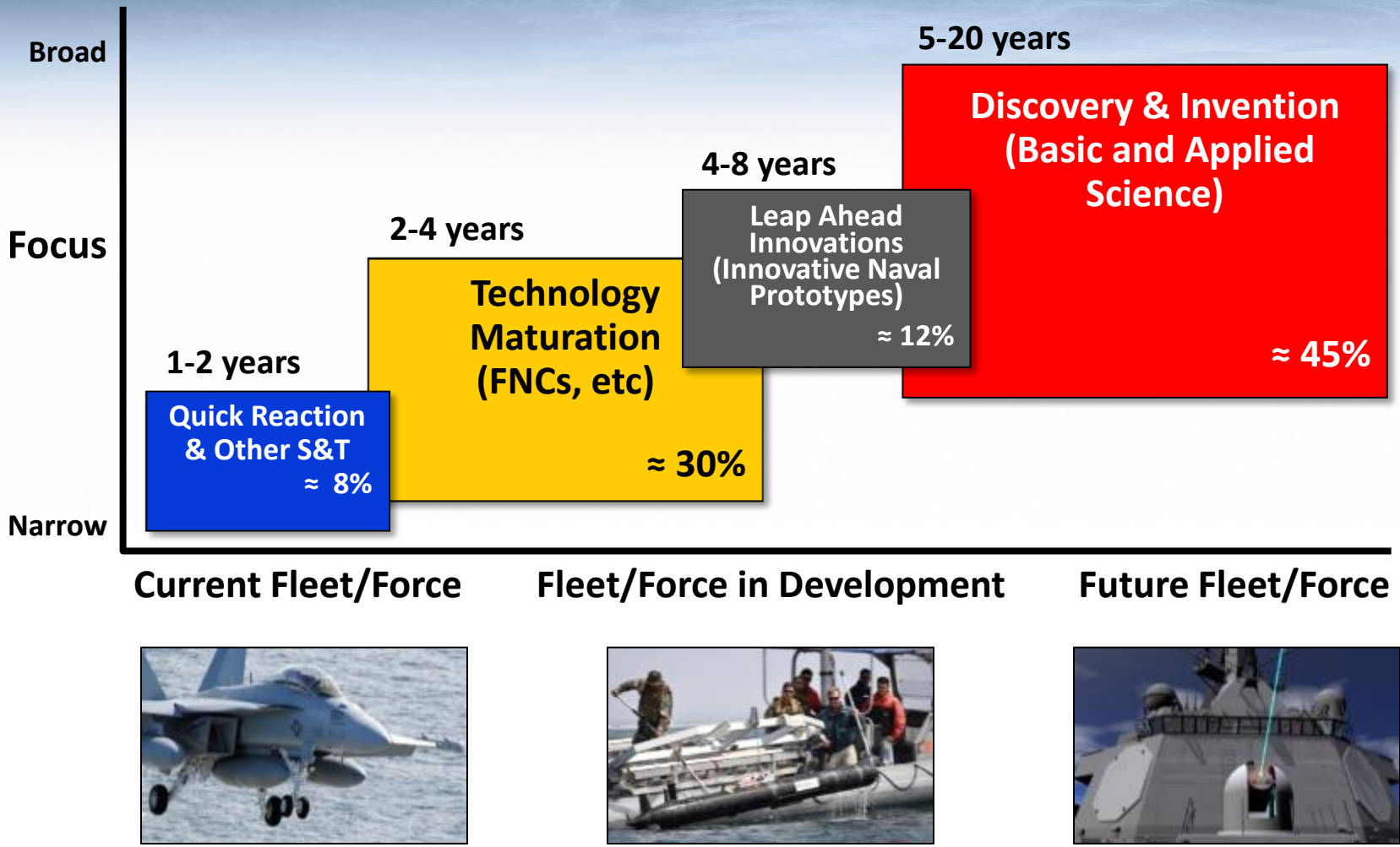
Discover → Develop → Deliver → Technological Advantage

How we execute our mission

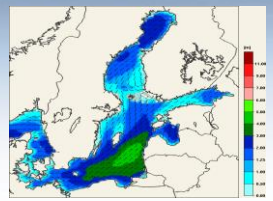
ONR finds, funds and manages a national and global network of researchers and innovators

- **Annual budget of ≈$2 billion**
- **FY 2014 funds obligated against:**
- **All 50 states, 55 countries**
- **Over 850 companies (72% SB)**
- **512 academic and non-profit institutions**
- **Navy Warfare Centers**
- **Naval Research Laboratory**
- **Other federal, DoD & university research centers**

Warfighting Capabilities Enabled by S&T Investments



Naval S&T Focus Areas



Assure Access to the Maritime Battlespace

- Ocean/Atmospheric Sciences
- Underwater Acoustics
- Ocean Sensing

Platform Design and Survivability

- Air/Surface/Subsurface Vehicles
- Materials
- Corrosion /Biofouling
- Manufacturing Technologies

Autonomy and Unmanned Systems

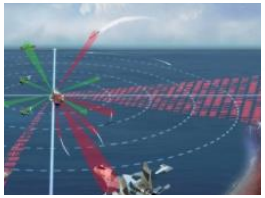
- Robotics
- Machine Learning
- Perception
- Human Machine Interface

Power and Energy

- Renewable Energy
- Propulsion
- Power Control
- Thermal Management

Expeditionary and Irregular Warfare

- Situational Awareness
- Decision Making
- Mobility / Logistics
- Soldier Protection

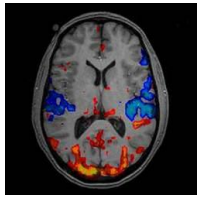


Electromagnetic Maneuver Warfare

- EM Propagation & Waveforms
- Sensors and Electronics
- Optical Systems

Information Dominance / Cyber

- Communications / Information Technology
- Computer Science
- Mathematics /Data Analytics



Warfighter Performance

- Biomedical / Bioengineeering
- Cognitive / Neural Sciences
- Training Technologies
- Health Protection

Power Projection and Integrated Defense

- Directed Energy
- Energetic Materials

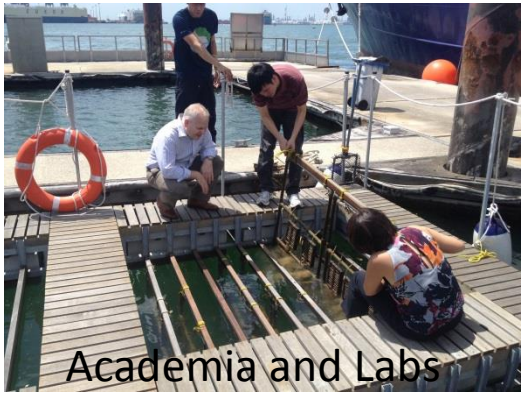
ONR Global Objectives

"ONR Global catalyzes Dept of Navy S&T connectivity between the international S&T community, the Fleet/Force, and the Naval Research Enterprise (NRE)."

Discovering the Best Science	Maintain Global Technical Awareness	Science & Technology Partnerships and Collaborations
• Innovative fundamental research • Help shape future Naval investments and strategies • Engage global S&T talent through cooperation	• Prevent technological surprise • Fundamental research is universal • Contribute open source data to Global Technology Awareness	• Advancement of mutually beneficial science • Support publication of S&T research • Foster partnerships between international S&T community and NRE

ONRG Programs

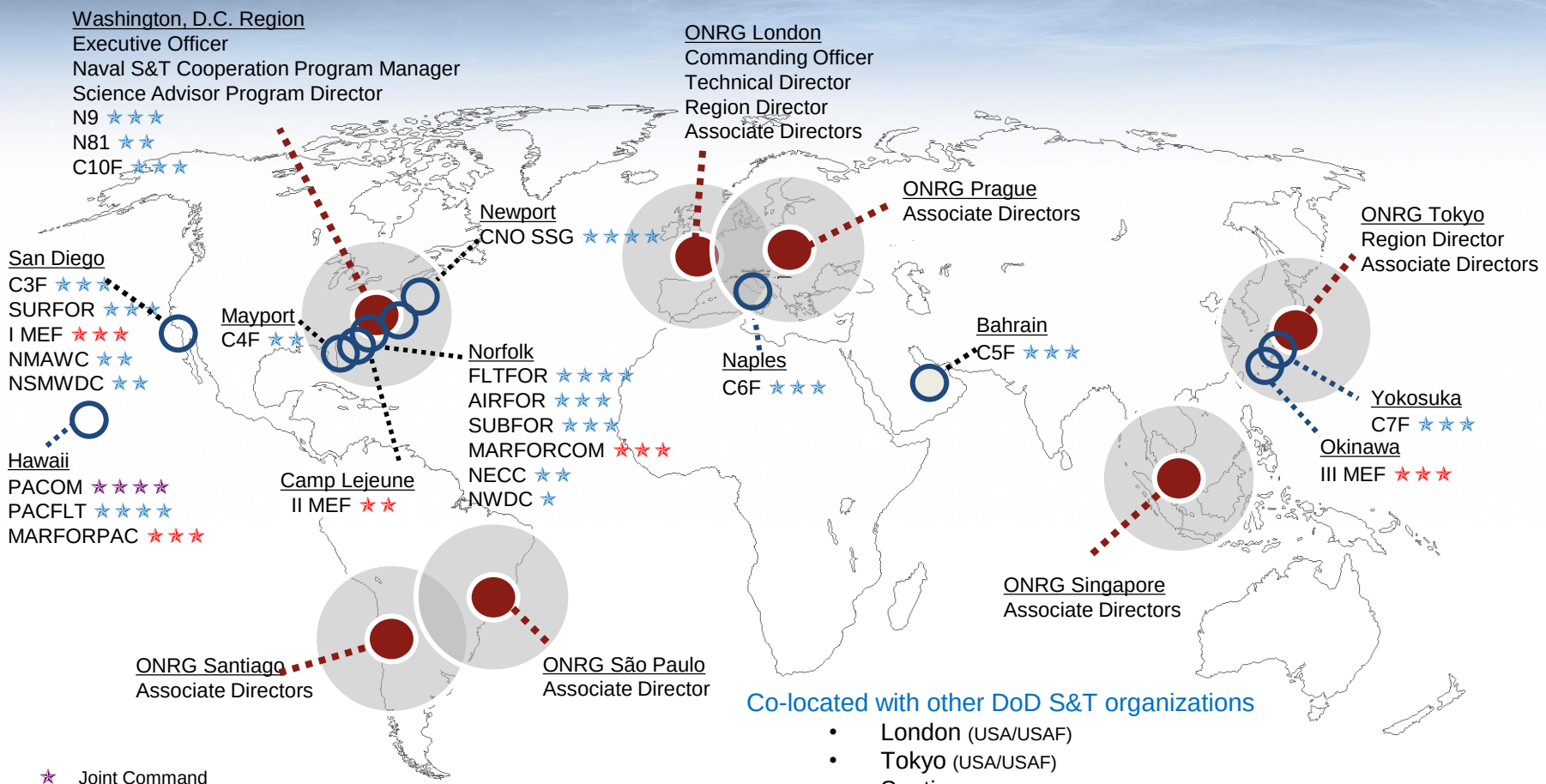
International Science Program	Science Advisor Program	Naval S&T Cooperation Program
23 Associate Directors located in six offices worldwide tasked with finding the best science and bringing it back to the Naval Research Enterprise	23 Science Advisors embedded in Navy and Marine Corps staffs to connect the warfighter and the Naval Research Enterprise	Developing and maintaining US Navy military to military basic research relationships


Academia and Labs


US Navy Fleet


NATO RTO

Global Presence



★ Joint Command
★ Naval Command
★ Marine Corps Command

Co-located with other DoD S&T organizations

- London (USA/USAF)
- Tokyo (USA/USAF)
- Santiago (USA/USAF)
- Singapore (USA only)

We Operate Forward

Science Advisors Strive To:

- **Articulate** Fleet Force S&T needs and requirements to ONR, NRL, NRE
- **Communicate** Command issues to CNR, ONR leadership and Program Officers
- **Serve** as ONR on site rep during Fleet Force exercises and demonstrations
- **Lead** S&T planning & experimentation processes to focus on meeting critical needs, then assist in transition of key technologies to the Warfighter

ONR's Ambassadors to the Fleet!

Associate Directors Strive To:

- **Act** as a tech broker linking ONR, NRL, and the NRE with International S&T
- **Identify** disruptive S&T in order to avoid Naval technical surprise
- **Gain** enhanced awareness of S&T through direct, regular contact with international colleagues
- **Initiate** and manage grants to provide tangible links between foreign scientists and their US Naval counterparts
- **Provide** ONR forward presence with global innovators and technologists

ONR's Global S&T Scouts!

International Science Program Grants

Collaborative Science Program (CSP): Support non-US workshops and conferences of Naval interest

Visiting Scientist Program (VSP): Support travel of non-US scientists to US to socialize new S&T ideas or findings with the Naval Research Enterprise

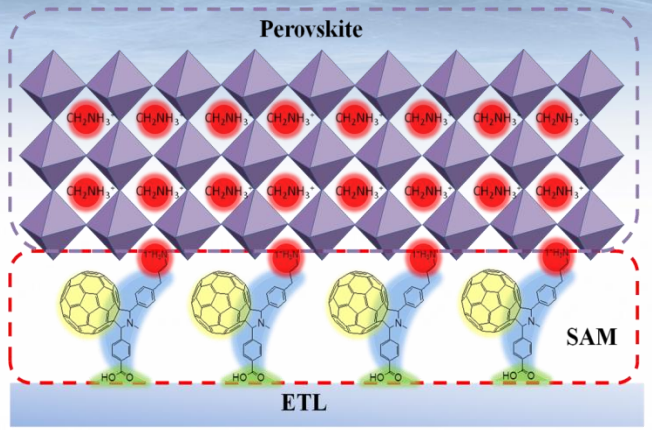
Naval International Cooperative Opportunities in Science Program (NICOP): Support insertion of innovative, international S&T into core ONR, NRE, & DoD S&T Programs

Seedling Funding for Innovative Research

Hybrid Perovskite-Organic Multi-Junction Solar Cells to Reach >20% PCE

S&T Research Goals

- Adapt perovskite solar cell approach to increase the efficiency of hybrid organic photovoltaics (OPV) beyond 20%
  - Tune bandgap of perovskite for optimal performance in single and multi-junction cells
  - Develop lead-free, efficient perovskites
  - Improve conductivity of collection regions
  - Optimize multi-layer processing and interconnects to maximize tandem efficiency
- Success will represent a step-change in the field of OPV, allowing for high-efficiency, portable, cost-effective power production in the field



Hybrid organic multi-junction photovoltaic: schematic structures of PbI64- octahedra (purple octahedra) with methylammonium ions (red spheroid) on C60-SAM modified ETL

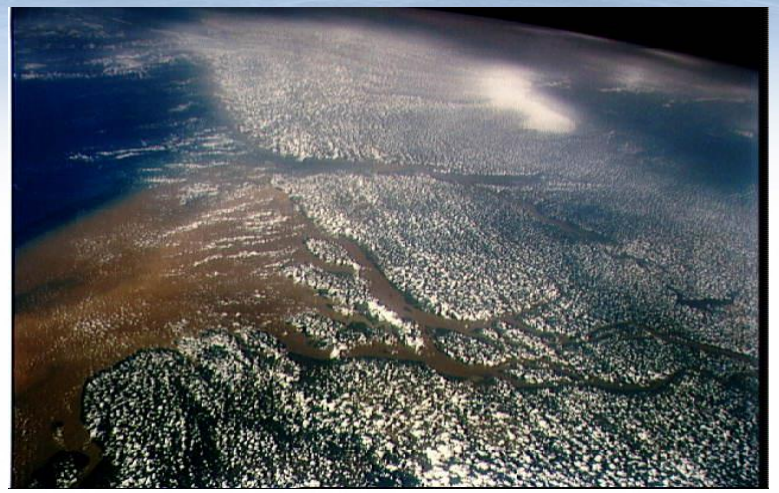
Participants

- Grant Country: UK
- ONR Program Manager: Paul Armistead, Code 332
- International Researcher: Henry Snaith, Oxford University
- US Collaborator: Alex Jen, University of Washington
- ONRG Associate Director: Shawn Thorne, ONRG-London

Historical Analysis of Amazon Delta Morphology Using Satellite Imagery

S&T Research Goals

- Develop a historical record analysis of the Amazon Delta so as to create a baseline for field work
- Describe 20 years of morphological change of the delta
- Advance collaborations between remote sensing researchers and field teams to accurately and efficiently describe ocean zones
- Establish collaborative remote sensing activities with the University of Miami



Satellite Image of the Amazon Mouth

Participants

- Brazil: Dr. Milton Kampel, National Space Sciences Institute
- US Participants: Dr. Hans Graber, University of Miami, Dr. Tom Drake Code 32
- ONRG Associate Director: Augustus Vogel

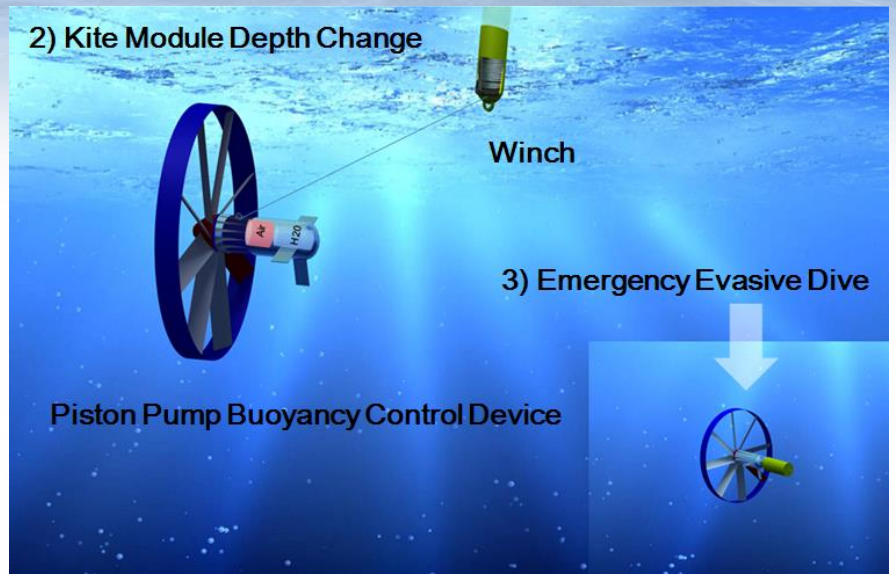
Autonomous Submersible Buoy System Utilizing Renewable Ocean Energy

Objectives:

Development of autonomous system for
1) Moorless non-drifting buoy platform (Auto-pilot)
2) Submerge in emergency
3) Harvesting and utilizing of ocean renewable energy

Importance:

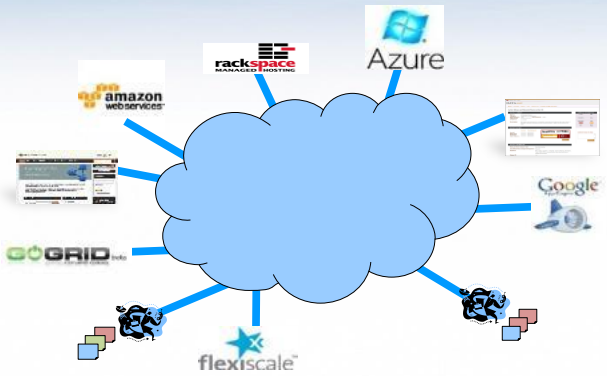
Autonomous mobilized robotic buoy could relocate on demand
The ocean energy harvesting system could serve as a power source to Navy's ocean systems such as mobilized buoy, AUV, ASV and ships.
Autonomous surface platform could serve for various sensor payload such as HF Radar



Participants

- Korea: Dr. Son-Cheol Yu, Pohang Institute of Science and Technology
- ONRG Associate Director: Joon Choe

Quantum Cloud & Mobile Cyber Security



Muttukrishnan Rajarajan, City University of London, "Bletchley Park Workshop on Mobile and Cloud Computing Security" April 2014 (with DHS S&T)

Lech Janczewski, University of Auckland, "SEC 2013 International Information Security and Privacy Conference" July 2013

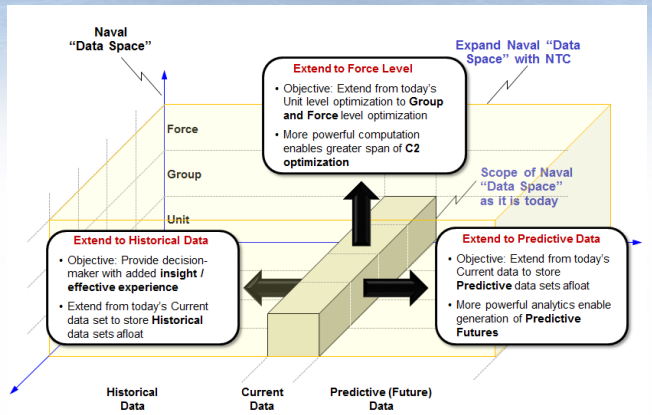
Simon Schneider, Innocentive, "Global Security Challenge 2013" Sep 2013

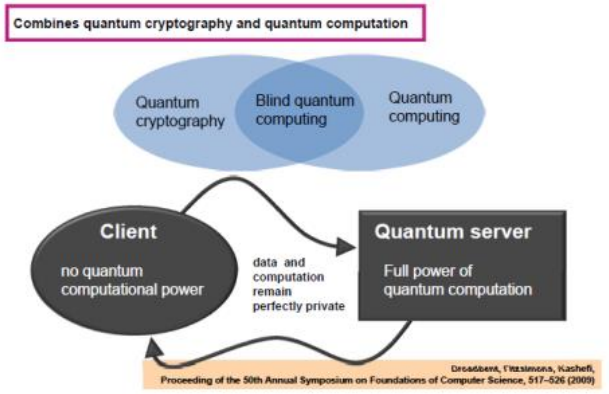
Muttukrishnan Rajarajan, City University of London, "IDMAN: Workshop on the Future of Identity" April 2013

Masao Sakauchi, Japan National Institute of Informatics, "Asia Pacific Quantum Information Workshop" May 2013

Bob Cocke and Samson Abramsky, Oxford University, "Quantum Information Sciences Workshop 2012" (with NRL)

Anil Kumar, Indian Institute of Science, "International Conference on Quantum Information And Quantum Computation" Jan 2013





Associate Director Attributes

Required

- Strong technical credentials
- In-depth experience in performing basic or applied research
- Ability to network/interface in a tech broker role
- US citizenship
- Ability to travel extensively

Preferred

- PhD in relevant field
- Experience with ONR/NRE
- Foreign language capability
- International S&T experience

- Associate Director candidates should apply to ONR Global's HR Manager. Send resumes/transcript to **CNREURAFSWA-ONRG-APPLICATIONS@eu.navy.mil**

- Position announcements are posted on ONR Global external website: **http://www.onr.navy.mil/Science-Technology/ONR-Global/employment-global.aspx**

Potential Vacancies in Summer 2016*

Science Advisor:

NAVAIRFOR (Norfolk, VA)

NECC (Little Creek, VA)

I MEF (Camp Pendleton, CA)

C3F (Norfolk, VA)

CNO SSG (Newport, RI)

Associate Director:

Autonomy and Unmanned Systems (London)

Expeditionary & Irregular Warfare (London)

Information Dominance (London)

Synthetic Biology (London or Tokyo)

Electromagnetic Maneuver Warfare (Tokyo)

Power Projection & Integrated Defense (Singapore)

Global Tech Awareness Asia (Singapore)

Global Tech Awareness S. America (Sao Paulo or Santiago)

Global Tech Awareness Central/Eastern Europe (Prague)

* New SAs/ADs in place July/Aug 2016

Potential Vacancies in Summer 2017*

Science Advisor:

MARFORPAC (Hawaii)

OPNAV N81 (Washington DC)

OPNAV N9 (Washington DC)

NAVSUBFOR (Norfolk)

C6F (Naples, IT)

C7F (Okinawa)

Associate Director:

Platform Design and Survivability (Singapore)

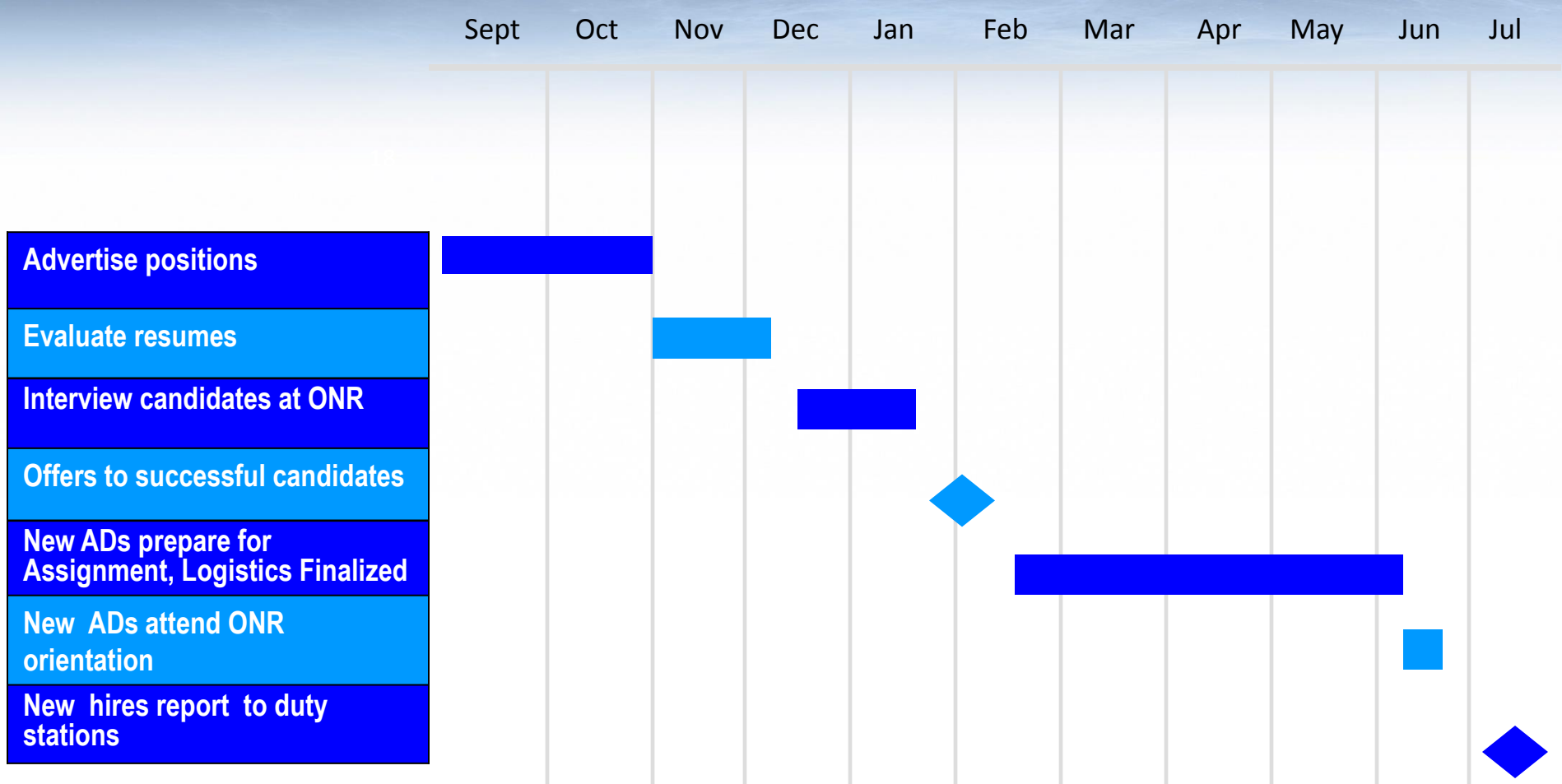
Global Technical Awareness Middle East/ N. Africa (London)

Global Technical Awareness S. America (Sao Paulo)

Global Technical Awareness S. America (Santiago)

* Tentative projection of positions

FY16 ONRG AD Selection Process



These dates projected as of August 2015

Why You Should Consider an ONR Global Assignment

- **Engage and Influence** the Naval S&T community
- **Experience** unique professional development and travel opportunities
- **Expand** your professional network opportunities and establish friendships that will last a lifetime
- **Strengthen** ties to international peers in your area of expertise
- Take your personal and professional growth **to the next level**